

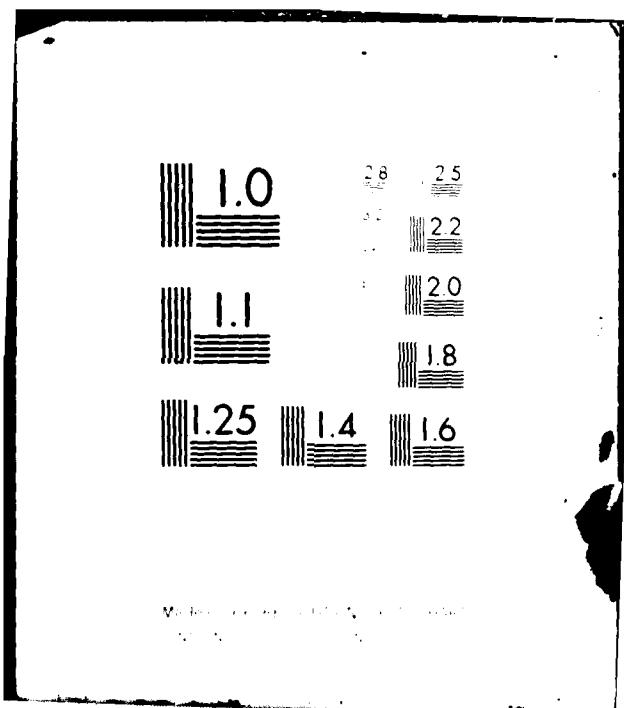
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FIRING PIN ARRANGEMENT OF A MECHANICAL IMPACT FUZE DEVICE.(U)
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(2)

FIRING PIN ARRANGEMENT OF A MECHANICAL IMPACT FUZE DEVICE

Author not given; Zundnadelanordnung einer mechanischen Aufschlagzundvorrichtung;
Soldat und Technik; 9/1981, p. 532; German

The invention relates to a firing pin arrangement of a mechanical impact fuze device for rockets or projectiles with a firing pin supported by a spacer in the nose which reacts to small impact angles.

A mechanical ignition device for projectiles is already known which is intended to react to small impact angles. Important components of this ignition device are a projectile cover or cap, a conical retaining surface, a membrane, a priming cap, a striker, a communicating element, a nose, a case, a safety element, an inertial element, and an intermediate piece. With this fuze arrangement, four different operating situations are assumed as occurring frequently:

1. Impact on a target with a low penetration resistance;
2. Impact with great target resistances;
3. Impact at small angle on the target surface, and
4. Impact with jammed intermediate piece and cap.

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In many situations, the communicating element, which acts on the striker actuating the priming cap, is set in motion by an axial motion of the inertial element. Of course, such a motion presumes that first the safety element is destroyed and then the intermediate element is moved. The destruction of the safety element must attain a certain measure before the inertia element touches the communicating element, for between the inertia element and the communicating element there should be a considerable interval. This interval and the work done in deformation necessary to cover it are a disadvantage. If the deformation work is too little, then a dud necessarily occurs. It is also disadvantageous that the intermediate element possesses a conical cavity at the contact surface with the communicating element. The conicity of this cavity is supposed to produce an axial movement of the communicating element and ignition when a movement of the intermediate element against the communicating element is at right angles to the longitudinal direction of the striker and the longitudinal direction of the communicating element. Also, in the case of the common firing pin arrangement ignition is supposed to be produced with the aid of a specified deformation point despite a jammed intermediate element. The specified deformation point is intended to assure a very definite deformation of the fuze point, and, indeed, the fuze point is supposed to make a rotating motion. To that end the fuze point is provided with a weak point at some distance from its front end. That is, not the front fuze end, but a point relatively far from it forms the most sensitive point on the fuze, which is a disadvantage.

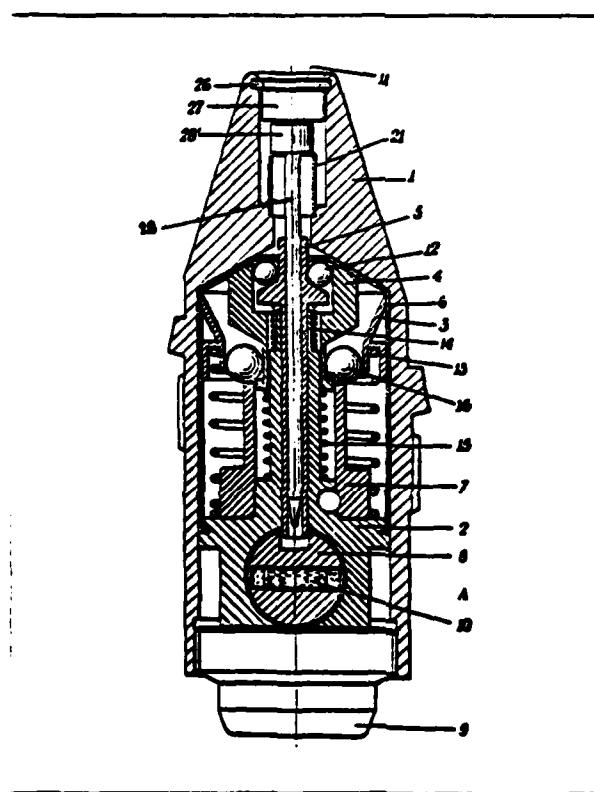
The underlying task of the invention is to create a firing pin arrangement which works reliably even with a small impact angle, which owing to simple construction and, therefore, lower-cost manufacture reliably prevents jamming of the firing pin. This task is solved by the fact that the firing pin at its front end is provided with a rigidly arranged top 28', which is supported with its back surface on an easily deformable cap 21 and with its front surface it abuts a flat surface of the spacer which runs perpendicular to the firing pin direction, whereby spacer 27 and top 28' of firing pin 28 can be moved radially to one another. In that manner the advantage is attained that in the chain of communicating elements acting from the end of the fuze tip to the priming cap there is no gap to bridge, as is

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the case with the gap between the inertia element and the intermediate elements in the conventional arrangement. Furthermore, the danger does not exist that the striker will be blocked by the transverse forces generated by the inertial element. Also, the forward end of the fuze case is the most sensitive part of the case.

Applicant: Snia Viscosa Societa Nazionale Industria Applicazioni, S.p.A. Mailand (Italy); Inventor: E. Marchiario, Dr. G. de Angelis; Date of application: 20 Jan 1970; Date pending patent application issued: 12 Nov 1970; DT-AS 2002288 of 11 Sep 1980; Class F 42c 15/24.



ELECTE

EJECTABLE SMOKE POT FOR HIGH-STRESS PROJECTILES

The invention relates to an ejectable smoke pot for high-stress projectiles arrangement close behind one another in the projectile case, which exhibits a central cavity to form a common ignition channel whose longitudinal axis coincides with the projectile axis. A smoke charge container with fins to reduce the dropping speed of the container is already known which is for ejection from a projectile. This container is generally cylindrical and exhibits a central cavity with flash holes as well as outlet openings in a front wall provided with fins for the smoke to be formed from the charge. This common container or pot requires stabilization of its attitude such that it comes to lie in the target area exclusively on the front wall not provided with outlet openings, a great ejection altitude with a correspondingly long flight path. Therefore, it is not suited for employment with carrier projectile with a long flight path, which is accompanied by not only a high firing stress but also a stress upon impact in the target area. The task of the invention is to create a smoke pot of the type described above which is so resistant in its construction that it does not require a retardation of its dropping speed, and also can become fully effective in the target area in not only a prescribed position and, hence, is suited for highly stressed projectiles. This problem is solved by the fact that the cylindrical inside and outside of pot provided with smoke openings 17 each exhibits a thick jacket 10, 11 and a thin base 13, 14 made of a high-strength light metal alloy and on each front side is arranged a solid circular plate 12 of the same material, and that the cases 13, 14 are flanged at the ends projecting into the plates 12 provided with recesses 15 such that the flange forms a plane surface with the plates.

The special advantages of this design and arrangement of the smoke pot consist in the fact that they withstand high firing and ejection stresses and permitting lengths with constant wall strengths and the employment of light metal permits adherence to the ballistic data (weight, moment of inertia, center of gravity) which must agree with the reference projectile. And finally, the construction of the smoke pot is simple and economical.

Plicant: Rheinmetall BmbH, Duesseldorf; Inventor: Dipl. Engr. J. Prochnow, Engr. Johannes; Date of application: 3 Aug 1974; Date pending patent application sued: 12 Feb 1976; DT-AS 2437535 of 2 Oct 1980; Class F42B 13/44.

